

WHAT IS CLAIMED IS:

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1. A method of manufacturing a semiconductor device, when a wafer having a main surface on which a plurality of bumps respectively connected to a plurality of electrode pads are formed, is brought into a resin molded type package to thereby manufacture said semiconductor device, comprising:

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placing a sheet encapsulating material containing a thermosetting resin over said wafer so as to cover said main surface; and

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heating and curing said sheet encapsulating material by a heating apparatus to thereby form an encapsulating resin layer.

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2. The method as claimed in claim 1, further comprising:

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polishing said encapsulating resin layer to thereby expose the tops of said bumps after said forming the encapsulating resin layer.

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3. The method as claimed in claim 1, further comprising:

forming external terminals each having conductivity so as to be connected to said bumps respectively; and cutting said wafer in which the formation of said external terminals has been finished, into each

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individual chips.

4. The method as claimed in claim 1, wherein said heating and curing are done by heating said wafer with the heating apparatus after the provision of said sheet encapsulating material over said wafer.

5. The method as claimed in claim 1, wherein said heating and curing are done by heating said wafer with the heating apparatus before the provision of said sheet encapsulating material over said wafer.

6. The method as claimed in claim 1, wherein said heating and curing are done at greater than or equal to a curing temperature at which said sheet encapsulating material is cured.

7. The method as claimed in claim 1, wherein said heating and curing are done in such a manner that the temperature of said sheet encapsulating material is taken as a temperature lower than the curing temperature of said sheet encapsulating material, the viscosity of said sheet encapsulating material is kept low, and said sheet encapsulating material is kept for a predetermined time at a temperature at which voids contained in said sheet encapsulating material are easy to be eliminated and thereafter the temperature of said sheet encapsulating

material is increased to said curing temperature or higher.

5 8. The method as claimed in claim 1, wherein said heating and curing are done in such a manner that the temperature of said sheet encapsulating material is taken as a temperature lower than the curing temperature of said sheet encapsulating material, the viscosity of said sheet encapsulating material is kept low, and said sheet
10 encapsulating material is kept for a predetermined time under reduced pressure at a temperature at which voids contained in said sheet encapsulating material are easy to be eliminated and thereafter the temperature of said sheet encapsulating material is increased to said curing
15 temperature or higher.

9. The method as claimed in claim 1, wherein said heating and curing are done in such a manner that the temperature of said sheet encapsulating material is taken
20 as a temperature lower than the curing temperature of said sheet encapsulating material, the viscosity of said sheet encapsulating material is kept low, and said sheet encapsulating material is kept for a predetermined time under reduced pressure at a void removal temperature at
25 which voids contained in said sheet encapsulating material are easy to be eliminated, and thereafter repeatedly held plural times for a predetermined time

while being kept at the void removal temperature under pressure between a pressure value placed under the reduced pressure and a pressure value of atmospheric pressure, and thereafter the temperature of said sheet
5 encapsulating material is increased to the curing temperature or higher.

10. The method as claimed in claim 1, wherein the covering of said sheet encapsulating material is carried
10 out by successively placing said sheet encapsulating material over said wafer from the end of said sheet encapsulating material so as to expel air.

11. The method as claimed in claim 1, wherein said
15 bumps are formed in such a manner that the positions thereof as viewed from the main surface side of said wafer and those of said electrode pads are rendered different from one another on a plane basis.

12. The method as claimed in claim 1, wherein said
20 external terminals are formed after the formation of a wiring metal over said sheet encapsulating material in such a manner that the positions of said bumps as viewed from the main surface side of said wafer and those of
25 said external terminals are different from one another on a plane basis.

13. The method as claimed in claim 1, wherein
external terminals are formed in place of said bumps.

14. The method as claimed in claim 1, wherein said
sheet encapsulating material contains a curing agent for
curing said thermosetting resin, in a state in which said
curing agent is enclosed in a capsule broken at said
curing temperature.

15. The method as claimed in claim 1, wherein said
sheet encapsulating material contains an antifoaming
agent for removing voids contained in said sheet
encapsulating material.